REMARKS

Claims 13-36 are pending. Claims 13-35 have been rejected. In this Amendment, claims 13 and 34 have been amended and new claim 36 has been added. Support for the amendments can be found throughout the application, as well as in the claims as originally filed. In particular, support for new claim 36 can be found in the Specification at page 16, paragraph 2. No new matter is added.

Claims 13-36 are submitted for further consideration in view of the remarks below. Applicants respectfully request reconsideration and withdrawal of all rejections.

The Office Action rejects claims 13-35 under 35 U.S.C. § 103(a) as being obvious over Reeve (U.S. Patent No. 5,523,231) in view of Ansfield (U.S. Patent No. 5,910,446). Applicants respectfully traverse the rejection.

Reeve teaches a method of isolating nucleic acid from biological compartments of a fluid sample. Applicants agree with the Examiner that Reeve does not teach the step of shaking the sample to carry out dissolving and redissolving. However, Applicants respectfully submit that it would not have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine and substitute the method of shaking the sample to carry out dissolving and redissolving of Ansfield (column 3, lines 2-4) into the nucleic acid extraction of Reeve.

Applicants respectfully submit that the Examiner's interpretation of the Reeve reference, specifically to "Precipitation of Bacteriophage and Other Viruses from Solution" in column 6, lines 4-33, was misdirected. As Applicants indicated in the previous Response, this embodiment seems to be the most comparable to the present invention because it most closely resembles the isolation of nucleic acids from substances that can be considered "biological compartments."

Again summarizing the description in column 6, lines 4-33 of Reeve, magnetic beads are added to a solution of bacteriophage or virus particles and then a magnetic field is applied to draw those particles out of solution. The first solution is removed. A second solution is added in the absence of a magnetic field. The magnetic field is reapplied to draw out the magnetic beads, leaving the nucleic acids in solution. According to Figure 2, the purified dissolved particles are thereafter ready for DNA extraction.

In contrast, claims 13 to 35 of the presently claimed invention require the magnetic particles to be capable of binding with the biological compartments. This claim limitation is supported by the present specification, which discloses that "The surface of these [magnetic] particles is modified in such a way that they can bind with the biological compartments" (page 9, lines 1-2). The specification further describes the binding of antibodies targeted against antigens of the biological compartments to the magnetic particles (page 9, lines 2-7, see also Example 1, page 23, lines 13-20).

Applicants note the difference between the binding capabilities of the magnetic beads in Reeve and the binding capabilities of the magnetic particles of the presently claimed invention (Specification, page 8, line 22 to page 9, line 11; and Reeve, column 2, lines 39-64). Applicants also note that because of the non-direct binding of the substances to be isolated by Reeve, a precipitate must be formed which includes the magnetic particles. In contrast, the biological compartments of the present invention do not have to be precipitated, but are able to bind directly out of solution to the magnetic glass particles.

In addition, Applicants respectfully submit that the presently claimed invention would not have been rendered obvious as Reeve teaches away from the instant

invention by saying that the magnetically attractable beads used "do not specifically bind the polymer" (see Abstract, first sentence). Thus, Reeve teaches away from direct binding.

Further, Ansfield does not teach magnetic beads or particles with binding capabilities. Applicants note that Ansfield teaches the dissolution of salts to form a more or less ideal solution. In contrast, the resuspension step of the present invention only warrants the formation of a suspension of particles and should make diffusion easier. Applicants respectfully submit that this difference is not taught or suggested by Ansfield.

Thus, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) is overcome as Applicants have distinguished the different binding capabilities of Reeve and the presently claimed invention.

Applicants also respectfully submit that the presently claimed invention would not have been rendered obvious by Reeve in view of Ansfield because claims 13 to 35 introduce a "shaking" step within the broader "re-suspending" step and a distinct "lysis" step.

First, claims 13 and 34 expressly claim the "shaking" step. In fact, the present specification indicates that shaking is an "important" feature of this invention (page 15, paragraph 4) during incubation of the sample mixture. The mixture is shaken to sufficiently mix the biological compartments and the magnetic particles in the fluid, and "especially to suspend or resuspend the beads and accelerate diffusion" (Specification page 15, paragraph 4). The shaking thereby reduces the amount of time required to bind the biological compartments to the magnetic particles. The "re-suspending" step in

claim 13 may be distinguished from the "re-dissolving" step in the Reeve reference on this basis.

Next, Applicants agree with the Examiner that, "Reeve does not teach shaking the sample to carry out dissolving and redissolving" (Office Action page 5, lines 11 to 12). However, Applicants respectfully submit that this deficiency is not satisfied by the disclosure of Ansfield (Column 3, lines 2-4). Applicants respectfully submit that in view of the arguments above, one of skill in the art at the time of the present invention would not have been motivated to combine the teachings of Reeve and Ansfield in this manner.

Applicants also respectfully submit that there is no teaching in either reference to the "lysis" step in claims 13 and 34. According to Figure 2, the Reeve reference discloses that once the magnetic beads are drawn from the solution, the purified virus particles are ready for DNA extraction. Reeve does not specifically disclose lysing the particles and isolating the nucleic acids from the lysis mixture, as claimed in claim 13. Lysis of the particles in Reeve is solely a precursor to the nucleic acid isolation process (Claims 4 and 5).

As there is no teaching as to the lysis step in claims 13 and 34, Applicants respectfully submit that the presently claimed invention would not have been obvious over Reeve in view of Ansfield.

Furthermore, in order to expedite prosecution of this application and make even clearer the differences between the presently claimed invention and Reeve, Applicants have amended claims 13 and 34 to emphasize the timing of the lysis step, in contrast with the timing of the lysis of the particles in Reeve. Applicants respectfully request

reconsideration and withdrawal of the above rejection in view of the amendments to the claims.

Next, Applicants agree with the Examiner that Reeve in view of Ansfield do not teach "warming of the lysis mixture to a specific temperature of about 70 degree to 95 degree centigrade" in claim 29 or the specific weight of the magnets in the range of 0.5 g to 5 g of claims 20 and 21 (Office Action, page 6, lines 6 to 8). However, Applicants respectfully submit that it is not *prima facie* obvious that the warming of the lysis mixture to a particular temperature and the selection of the specific weight of the magnets constitutes routine optimization that would be obvious to one skilled in the art.

Applicants respectfully submit that Reeve in view of Ansfield do not suggest or disclose present independent claims 13 or 34, and therefore the dependent claims 20, 21 and 29 are non-obvious as well.

In regard to the warming step, Applicants respectfully submit that the relevant issue is not whether routine optimization would select a specific temperature for warming the lysis mixture, but whether the warming step is disclosed at all by the Reeve reference. The Office Action alleges that Reeve teaches warming of the lysis mixture to a temperature around room temperature or higher (Office Action page 5, lines 4-5, citing Example 7, column 10, lines 65-67).

As discussed above, the lysis mixture in Reeve is a precursor to the nucleic acid isolation process. As such, the warming in Reeve is part of the steps prior to the nucleic acid isolation process. Reeve even states that, "Preparations can be incubated ... at 37°C before analysis (Example 6, column 10, lines 65-67, and Example 7, column 11, lines 28-29)." In addition, the above amendments to claims 13 and 34 further distinguish the warming step of the presently claimed invention.

Thus, Applicants respectfully submit that claim 34 would not have been obvious over the Reeve reference because it is missing the additional steps of warming the lysis mixture and then cooling the lysis mixture to assist in the isolation of the nucleic acids. The Reeve reference only discloses a "chilling" step (column 6, lines 17-18) to assist the aggregation of nucleic acids or virus particles to the magnetic beads (page 4, lines 17-21). Further, Ansfield does not teach the warming step. As the warming step disclosed by claim 34 of the presently claimed invention is not obvious over Reeve in view of Ansfield, the question of routine optimization as to the specific temperature of the warming step should not be at issue.

For the above reasons, Applicants respectfully submit that the presently claimed invention is not taught or suggested by Reeve. Applicants respectfully request that the rejections under 35 U.S.C. § 103(a) be withdrawn.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper,

may be charged to counsel's Deposit Account No. 01-2300, **referencing attorney docket number 101614-00001**.

Respectfully submitted,

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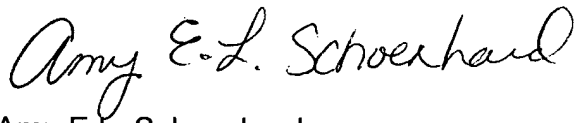

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